

High Refractive Index Series

NTT Advanced Technology Corp.

ITEM	Test method / Condition	Unit	#7200	AT7195M	#8322	#8323	#6205
			Epoxy type		Radical polymerization Type		
Viscosity	E Type viscosmeter : at 25°C	cP	11,000	860	126	73	18
Refractive Index, before curing	Abbe refractmeters : at 25°C	nD	1.61	1.54	1.64	1.63	1.68
Specific Gravity, before curing	Vibrational digital densimeter: at 25°C		1.787	1.136	1.181	1.155	1.186
Specific Gravity, after curing	Water substitution method		1.839	1.184	1.258	1.246	1.256
Curing time	100mW[mW/cm ²] *30mW[mW/cm ²]	min	10*	10	10	10	10
Refractive Index, after curing	Abbe refractmeters : at 25°C	nD	1.63	1.57	1.68	1.67	1.71
Glass Transition temperature	Dynamic viscoelasticity: the max temperature of tan δ	dgree C	63	120	164	188	<19
Shrinkage during curing	measured by the difference of density before and after curing	%	3	4	6	7	6
Hardness	shore D (at 25°C)		83	86	83	82	A95
Optical Transmittance @1.3um	sample thichness 1mm/ measurement wavelength 1.3um	%	90	91	80	80	82
Water Absorption	The increasing weight rate after 24h immersion at 25°C	%	0	0.4	0.1	0.1	0
Tensile Shear Strength	Dry (25 degree C)	kgf/cm ²	55	89	18	34	45
	Wet (After 121degree C 100%RH-10h)		>68	>95	8	44	55
Moisture Resistance	Observation of glass plates peeling: Condition 121°C 100% RH	Peeling occurrence	>100h	>100h	<50h	<50h	>100h
	Observation of glass plates peeling: Condition 121°C 100% RH	Peeling occurrence	>1,000	>1,000	>1,000	>1,000	>1,000 **
Heat Resistance	Weight decrease rate after 150°C 10h	%	0.4	1	0.5	0.4	3
	After 150°C 10h processing	transmittance	93	87	90	90	80

**White -ization

Low Refractive Index Series

NTT Advanced Technology Corp.

ITEM	Test method / Condition	Unit	E3341	E3337	#8723
			Epoxy type		Radical polymerization Type
Viscosity	E Type viscosmeter : at 25°C	cP	2700	330	34
Refractive Index, before curing	Abbe refractmeters : at 25°C	nD	1.42	1.40	1.32
Specific Gravity, before curing	Vibrational digital densimeter: at 25°C		1.453	1.500	1.670
Specific Gravity, after curing	Water substitution method		1.499	1.564	1.742
Curing time	10 [mW/cm ²]	sec	2	10	5
Refractive Index, after curing	Abbe refractmeters : at 25°C	nD	1.43	1.42	1.32
Glass Transition temperature	Dynamic viscoelasticity: the max temperature of tan δ	dgree C	94	88	<RT
Shrinkage during curing	measured by the difference of density before and after curing	%	3	4	-
Hardness	shore D (at 25°C)		84	74	A72
Optical Transmittance @1.3um	sample thichness 1mm / measurement wavelength 1.3μm	%	68	93	96
Water Absorption	The increasing weight rate after 24h immersion at 25°C	%	0.2	0.2	0.6
Tensile Shear Strength	Dry (25 degree C)	kgf/cm2	46	33	5
	Wet (After 121degree C 100%RH-10h)		>278	>58	1
Moisture Resistance	Observation of glass plates peeling: Condition 121°C 100% RH	Peeling occurrence	>10h	>20h	>100h
	Observation of glass plates peeling: Condition 121°C 100% RH	Peeling occurrence	>1,000*	>1,000	>1000
Heat Resistance	Weight decrease rate after 150°C 10h	%	0.1	0.7	7.1
	After 150°C 10h processing	transmittance	36 (tawny)	93 (brown)	88